PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Pak-Wing Steve Chum, et al.

Serial No.: 08/544,497
Filed: October 18, 1995
Attorney Docket No.: C-40,121-AU

Art Unit: 1505
Previous Examiner: D. Wu

For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

HEREBY CERTIFY THAT THIS CORRESPONDENCE IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS FIRST CLASS MAIL WITH SUFFICIENT POSTAGE IN AN ENVELOPE ADDRESSED TO: COMMISSIONER OF PATENTS AND TRADEMARKS, WASHINGTON, D.C. 20231, on February 2, 1996
DATE OF DEPOSIT

Jan Alverson
PRINT OR TYPE NAME OF PERSON SIGNING CERTIFICATE

Jan Alverson
SIGNATURE OF PERSON SIGNING CERTIFICATE

2-2-96
DATE OF SIGNATURE

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

THIRD MARKOVICH DECLARATION UNDER 37 CFR § 1.132

Ronald P. Markovich declares and states:

THAT, he obtained a Bachelor of Science degree in Chemistry from Wayne State University (Detroit, Michigan) in 1983;

THAT, he joined The Dow Chemical Company (Midland, Michigan) in 1983 as a Chemist in the Research Assignments Program (RAP), and was promoted to Senior Research Chemist in 1989 and to his present position as Project Leader in 1993;

THAT, his first two RAP assignments pertained to analytical test method development, his RAP third assignment was in the Polyolefins Research and Development department and his fourth (and last) RAP assignment in the Polyolefins Technical Service and Development department;

THAT, after his last RAP assignment, he joined the Polyolefins Research and Development department full time and for the last ten and half years, he has focused his research and development efforts in the area of polyolefin product properties and analytical test method procedures and development;

THAT, his current responsibilities pertain to polyolefin product development as related to the interrelationships between fundamental polymer structure, process requirements and product performance properties;

THAT, he is an inventor as to the above-identified patent application and is therefore familiar with the patent application, the Examiner's rejections of the claims and the WO '414 reference on which the Examiner relies;

THAT, as a follow up to the incomplete impact performance results reported in the Second Markovich Declaration, he had the Dynatup impact properties for Inventive Examples and Comparative Examples re-measured and also had the slope of strain hardening coefficient measured for the component polymers used to prepare the various Inventive and Comparative Examples;

THAT, a full report of important component properties, including slope of strain hardening coefficients, is provided in the attached Table 1 and a report of the performance results for Inventive Examples and Comparative Example are provided in Table 2, and that Tables 3, 4 and 5 provide the specific performance results (Dynatup impact strength, Intrinsic tear and Tensile break strength, respectively) for the various Examples at an equivalent Molecular Weight of 71,6000;

THAT, in addition to having very different component polymers, performance results and data conclusively show that Inventive (Blend) Examples as defined by specific component properties, including a slope of strain hardening coefficient greater than or equal to about 1.3 and up to about 2.3, exhibit superior to dramatically superior impact resistance and intrinsic tear resistance relative to WO '414 compositions when directly compared at equivalent weight percentages through the range of 38%/62%, 50%/50% and 72%/28% Component A/Component B;

THAT, the impact properties of the Inventive Examples are particularly unexpected and surprising in that they show substantially higher impact resistance even at slightly higher densities relative to blend compositions representative of WO '414, whereas one skilled in the art would ordinarily expect compositions having higher densities to show inferior impact properties relative to comparative compositions having lower densities; and

THAT, with respect to tensile break strength, although superior or dramatically superior results are easily obtained with Inventive compositions, this property appears to be more sensitive to component polymer concentrations than impact resistance and/or tear resistance, and as such, compositions containing more than 40 weight percent of a substantially linear ethylene interpolymer are considered to be preferred compositions.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date 2/2/96

Ronald P. Markovich

Ronald P. Markovich

Table 1

Sample Designation	A	B	C	D	AB1	AB2	AB3	Exact 3027	Exact 3022
	Component Example A	Component Example B	Component Example C	Component Example D	Comparative Component AB1	Comparative Component AB2	Comparative Component AB3	Comparative Resin	Comparative Resin
Polymer Type	Substantially Linear Ethylene/ Octene Copolymer	Substantially Linear Ethylene/ Butene Copolymer	Substantially Linear Ethylene/ Octene Copolymer	Substantially Linear Ethylene/ Octene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer	Homogeneously Branched Linear Ethylene/Butene Copolymer
Density (g/cc)	0.906	0.9052	0.90575	0.9032	0.9031	0.9033	0.9034	0.9015	0.9065
I2	4.01	4.23	3.99	2.7	3.83	3.93	4.19	3.26	8.48
I10 / I2	8.22	7.88	5.82	7.80	5.90	5.69	5.64	5.65	5.49
I10	32.96	33.32	23.21	21.05	22.6	22.38	23.64	18.42	46.57
Mw by GPC	68200	67100	77400	72300	79100	80700	77500	85800	65100
Mw/Mn by GPC	2.23	2.12	1.89	2.15	2.15	2.17	2.06	2.00	2.00
Slope of Strain Hardening Coefficient	1.5	1.0	1.7	1.3	1.2	1.0	1.1	1.2	1.0
>Shear Stress @ OSGMF (dyn/cm^2)	> 3.88 x 10^6	> 4.31 x 10^6	> 4.31 x 10^6	gross melt fracture not observed up to 4.41 x 10^6	> 3.45 x 10^6	> 3.45 x 10^6	> 3.45 x 10^6	> 3.45 x 10^6	> 3.23 x 10^6
<Shear Stress @ OSGMF (dyn/cm^2)	< 4.09 x 10^6	< 4.48 x 10^6	< 4.48 x 10^6	gross melt fracture not observed	< 3.66 x 10^6	< 3.66 x 10^6	< 3.66 x 10^6	< 3.66 x 10^6	< 3.45 x 10^6

Note 1: Comparative Resin AB1 is a blend containing of 75.87% Exact 3027 and 24.13% Exact 3022.
Note 2: Comparative Resin AB2 is a blend containing of 74.44% Exact 3027 and 25.56% Exact 3022.
Note 3: Comparative Resin AB3 is a blend containing of 73.75% Exact 3027 and 26.25% Exact 3022.

Table 2

Sample Designation	AD1 Inventive Blend Example	BD1 Comparative Example	CD1 Inventive Blend Example	X1 Comparative Example	AD2 Inventive Blend Example	BD2 Comparative Example	CD2 Inventive Blend Example	X2 Comparative Example	AD3 Inventive Blend Example	BD3 Comparative Example	CD3 Inventive Blend Example	X3 Comparative Example	ED3 Inventive Blend Example	X4 Comparative Example
Blend Component														
A	38.46%				72.35%				50.00%					
B		38.14%				71.75%				50.00%				
C			38.46%				72.35%				50.00%			
PL 1850													50.00%	
EXACT 3027				28.95%				53.90%				36.88%		50.00%
EXACT 3022				9.21%				18.50%				13.13%		
HDPE 04352N	61.54%	61.86%	61.54%	61.84%	27.65%	28.25%	27.65%	27.60%	50.00%	50.00%	50.00%	50.00%	50.00%	50.00%
I2	4.11	4.25	4.18	4.13	4.08	4.10	4.04	4.09	4.04	5.02	4.07	4.17	3.43	3.74
I10 / I2	7.31	6.96	6.29	6.19	7.67	7.64	5.98	5.84	7.42	8.22	6.20	5.58	7.33	6.09
I10	30.06	29.59	26.29	25.57	31.29	31.34	24.15	23.87	29.96	41.24	25.23	23.27	25.13	22.76
Mw by GPC	74900	74800	77200	83400	71700	73800	77200	80500	71600	75000	78700	80600	76100	79700
Mw/Mn by GPC	2.56	2.53	2.58	2.52	2.47	2.33	2.20	2.27	2.46	ND	2.44	2.54	2.46	2.42
Strain @ Yield	15.0	15.0	14.9	15.0	14.9	15.0	14.8	15.0	15.0	15.0	15.1	14.9	15.0	15.0
Break Strength	1835	2070	1921	1801	3187	2253	3268	2729	2188	1646	3655	1652	3050	1539
Break Energy	385	57	509	108	1130	781	991	990	981	144	1329	249	1168	214
Intrinsic Tear	160	102	221	110	279	107	377	142	224	112	264	116	269	34
Dynatup (30 Mil Plaque) Total Energy	2.84	2.08	2.84	2.59	3.66	2.39	5.67	2.78	3.44	2.63	4.23	2.63	3.81	2.91

ND = not determined

Dynatup Total Energy Impact Strength (Corrected)*

Table 3

Weight Percent of Polymer Representative of '013	38%	50%	72%
Inventive Examples			
A	**2.71** (AD1)	**3.44** (AD3)	**3.65** (AD2)
C	**2.63** (CD1)	**3.85** (CD3)	**5.26** (CD2)
E	**NA**	**3.58** (ED3)	**NA**
Comparative Examples			
B	**1.99** (BD1)	**2.51** (BD3)	**2.32** (BD2)
1	**2.22** (X1)	**2.34** (X3)	**2.47** (X2)
2	**NA**	**2.61** (X4)	**NA**
Calculations	Percent Relative Performance of Inventive Examples (Relative to Comp Ex 1) **18-22% higher** (Relative to Comp Ex B) **32-36% higher**	Percent Relative Performance of Inventive Examples (Relative to Comp Ex. B) **37-53% higher** (Relative to Comp Ex 1) **47-65% higher** (Relative to Comp Ex 2) **32-48% higher**	Percent Relative Performance of Inventive Examples (Relative to Comp Ex 1) **48-113% higher** (Relative to Comp Ex B) **57-127% higher**
Performance Conclusions - *Inventive Examples are*:	superior	superior	dramatically superior

NA = not available.
( ) provides the Example designation as set forth in Table 2.
* Impact strength values were corrected to 71,600 equivalent Molecular Weight for each Example.

Intrinsic Tear (Corrected)*

Table 4

Weight Percent of Polymer Representative of '013	38%	50%	72%
Inventive Examples			
A	**153** (AD1)	**224** (AD3)	**279** (AD2)
C	**205** (CD1)	**240** (CD3)	**350** (CD2)
E	**NA**	**253** (ED3)	**NA**
Comparative Examples			
B	**98** (BD1)	**107** (BD3)	**104** (BD2)
1	**94** (X1)	**103** (X3)	**126** (X2)
2	**NA**	**31** (X4)	**NA**
Calculations	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) **56-109% higher** (Relative to Comp Ex 1) **63-118% higher**	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) **109-136 % higher** (Relative to Comp Ex 1) **117-147 % higher** (Relative to Comp Ex 2) **623-716% higher**	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) **168-237% higher** (Relative to Comp Ex 1) **121-178% higher**
Performance Conclusions - *Inventive Examples are:*	dramatically superior	dramatically superior	dramatically superior

NA = not available.
( ) provides the Example designation as set forth in Table 2.
* Intrinsic tear values were corrected to 71,600 equivalent Molecular Weight for each Example.

Tensile Break Strength (Corrected)*

Table 5

Weight Percent of Polymer Representative of '013	38%	50%	72%
Inventive Examples			
A	**1754** (AD1)	**2188** (AD3)	**3183** (AD2)
C	**1781** (CD1)	**3325** (CD3)	**3031** (CD2)
E	**NA**	**2870** (ED3)	**NA**
Comparative Examples			
B	**1981** (BD1)	**1571** (BD3)	**2186** (BD2)
1	**1546** (X1)	**1468** (X3)	**2427** (X2)
2	**NA**	**1383** (X4)	**NA**
Calculations	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) **10-11% lower** (Relative to Comp Ex 1) **13-15% higher**	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) **39-112% higher** (Relative to Comp Ex 1) **49-126% higher** (Relative to Comp Ex 2) **58-140% higher**	Percent Relative Performance of Inventive Examples (Relative to Comp Ex B) **39-46% higher** (Relative to Comp Ex 1) **25-31% higher**
Performance Conclusions - *Inventive Examples are:*	similar	dramatically superior	superior

NA = not available.

( ) provides the Example designation as set forth in Table 2.

* Tensile break strength values were corrected to 71,600 equivalent Molecular Weight for each Example.

ANNEX 1

40121BL
Received Rule 60 Continuation Patent Application in the U.S. Patent Office re: Postcard, fee sheet (+) 2 copies, copies of IDs, Supplemental Decl. and drawings

Title: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS
Applicant: Pak-Wing Steve Chum, et al.
Pages of Spec: 33
Number of Claims: 30
Sheets of Drawings: 2

Declaration attached: Yes
Fee: $1,070.00 Charged to our Deposit Account.

OKM/man

Date Mailed: 04/11/97

ANNEX 2

C. 40121-A

Received NEW PATENT APPLICATION in the U.S. Patent Office re: Fee Sheet x2;

Title: Fabricated Articles Made From Ethylene Polymer Blends

Applicant: Park-Wing Steve Chum, et al.

Pages of Spec: 33

Number of Claims: 30

Sheets of Drawings: --

Declaration attached.

Fee: $ 1045.00 charged to our Deposit Account

SPK/slc

08/544497

ANNEX 3

US005677383A

United States Patent [19]

Chum et al.

[11] Patent Number: 5,677,383

[45] Date of Patent: Oct. 14, 1997

[54] FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

[75] Inventors: Pak-Wing Steve Chum, Lake Jackson; Ronald P. Markovich, Houston; George W. Knight, Lake Jackson; Shih-Yaw Lai, Sugar Land, all of Tex.

[73] Assignee: The Dow Chemical Company, Midland, Mich.

[21] Appl. No.: 544,497

[22] Filed: Oct. 18, 1995

Related U.S. Application Data

[63] Continuation of Ser. No. 378,998, Jan. 27, 1995, abandoned, which is a continuation of Ser. No. 54,379, Apr. 28, 1993, abandoned, which is a continuation-in-part of Ser. No. 776,130, Oct. 15, 1991, Pat. No. 5,272,236.

[51] Int. Cl.[6] C08L 23/06

[52] U.S. Cl. 525/240; 525/242; 525/320

[58] Field of Search 525/240, 242, 525/320

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(List continued on next page.)

Primary Examiner—David W. Wu

[57] ABSTRACT

Fabricated articles made from formulated ethylene polymer compositions are disclosed. Films made from such formulated compositions have surprisingly good impact and tensile properties, and an especially good combination of modulus and toughness. The ethylene polymer compositions have at least one homogeneously branched substantially linear ethylene/α-olefin interpolymer and at least one heterogeneously branched ethylene polymer. The homogeneously branched substantially linear ethylene/α-olefin interpolymer has a density from about 0.89 to about 0.92 g/cm^3 and a slope of strain hardening coefficient greater than or equal to about 1.3.

18 Claims, 2 Drawing Sheets

ANNEX 4

O-103X
av. 7-93)

FILING RECEIPT

UNITED STATES PARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

MAILED TO MIDLAND

05/21/98 jc568 U.S. PTO

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
08/378,998	01/27/95	1505	$730.00	C-40.121-AB	2	15	2

THE DOW CHEMICAL COMPANY
PATENT DEPARTMENT B 1211
2301 NORTH BRAZOSPORT BLVD
FREEPORT TX 77541

RECEIVED
MAR - 3 1995
PATENT DEPT

Receipt is acknowledged of this patent application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

Applicant(s) PAK-WING STEVE CHUM, LAKE JACKSON, TX; GEORGE W. KNIGHT, LAKE JACKSON, TX; RONALD P. MARKOVICH, FRIENDSWOOD, TX; SHIH-YAW LAI, SUGAR LAND, TX.

CONTINUING DATA AS CLAIMED BY APPLICANT-
THIS APPLN IS A CON OF 08/054,379 04/28/93
WHICH IS A CON OF 07/776,130 10/15/91 PAT 5,272,236

TITLE
FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

PRELIMINARY CLASS: 526

C- 40,121-AB

RECEIVED
FEB - 8 1995
PATENT DEPT. TEXAS

Received NEW PATENT APPLICATION in the U.S. Patent Office re:
Rule 1.62 Continuation Fee Sheet (original & 2 copies)
Title: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS
Applicant: Pak-Wing Steve Chum, et al.
~~Pages of Spec.~~
Number of Claims: 15
Sheets of Drawings: 0
~~Declaration attached~~
Fee: $ 730.00 charged to our Deposit Account

LWW/ika

Mailed via Express Mail
January 27, 1995

08/378998

ANNEX 5

Best Available Copy

MAILED TO MIDLAND

UNITED [illegible] DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
[illegible]	01/27/95	CHUM	[illegible]

EXAMINER	
[illegible]	
ART UNIT	PAPER NUMBER
[illegible]	11

[illegible]

DATE MAILED: [illegible]

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

[illegible] 25 1995
[illegible] DEPT. TEXAS

☒ This application has been examined ☒ Responsive to communication filed on 1-27-95 ☒ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☒ Notice of Draftsman's Patent Drawing Review, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474..
6. ☐ _____.

Part II SUMMARY OF ACTION

1. ☒ Claims 1-8 and 17-23 are pending in the application.

   Of the above, claims _____ are withdrawn from consideration.

2. ☒ Claims 9-16 and 24-30 have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 1-8 and 17-23 remain are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____. has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____ ; filed on _____.

13. ☐ Since this application apppears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

PTOL-326 (Rev. 2/93)

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

17. Claims 1-8, and 17-23 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over WO '414.

18. In examples 1 and 2, and Table 1, WO '414 discloses polymer blends B1 and B2 made by ethylene polymers '006, and '013 wherein the MWD, melt index, and density fall into the same ranges as claimed. Although WO '414 fails to show the value of the slope of strain hardening coefficient of polymer '013, in view of other substantially similar physical properties, the examiner has a reasonable basis to believe that it inherently possesses said slope of strain hardening coefficient, and the polymer blends of WO '414 are not necessarily different from the claimed polymer blends. Since the examiner does not have proper equipment to carry out the analytical tests, the burden is on the applicants to prove the claimed polymer blends are necessarily different from those of WO '414 and unobvious thereof. ***In re Fitzgerald et al.*** 205 USPQ 594 (CCPA 1980).

19. Even if the properties of the polymer composition of the instant claims and the prior art examples are not the same, it would still have been obvious to one of ordinary skill in the art to make polymers having the claimed properties because it appears that the reference generically embrace the claimed polymer blends and the person of ordinary skill in the art would have expected all embodiments of the reference to work. See pages 6-7 of reference. Applicants have not demonstrated that the differences, if any, between the claimed product and the

products of the prior art examples give rise to unexpected results.

20. Applicant's arguments filed on May 18, 1994 have been fully considered but they are not deemed to be persuasive.

21. Applicants argue that part (A) of claimed polymer blends is a substantially linear ethylene/alpha-olefin interpolymer which is not a linear polymer but has "long chain branching", and part (B) is a heterogeneously branched ethylene polymer wherein less than 10 wt.% of a polymer fraction having SHC > about 1.3. However, the physical properties of '006 and '013 of WO '414 such as density, MWD, melt index are substantially similar to those set forth in the claims. Moreover, Applicants are reminded that the claims --not specification or examples-- define what Applicants regard as their invention. Here, the term "long chain branching" which applicants alleged as novelty of part (A) has never been set forth in the claims. Applicants also alleged that in Table 3, example 1 and 2 both have significantly higher dart impact and toughness than those of comparative example 3. However, none of the comparative experiments (including comparative example 3) are truly representative of the closest disclosure of WO '414.

The Chum(s) Declaration filed on May 18, 1994 has been considered but not deemed to be persuasive since there is no any comparative tests to show the unexpected results of the claimed polymer blends, mere conclusory statements are not entitled to probative weight. Since applicants have not met their burden to provide objective evidence demonstrating the claimed polymer blends are in fact differ from those of WO '414, the 102(b)/103 rejection is still deemed to be proper.

22. This is a Continuation of applicant's earlier application S.N. 08/054,379. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds or art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See M.P.E.P. § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE

STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Wu whose telephone number is (703) 308-2450. The examiner can normally be reached on weekdays from 8:00 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Joseph Schofer, can be reached on (703) 308-2452. The fax phone number for this Group is (703) 305-5432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

DAVID WU
PATENT EXAMINER
GROUP 1500

David Wu
April 14, 1995

PTO FORM 948
(REV. 7-92)

U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

GROUP	ATTACHMENT TO PAPER NUMBER
	APPLICATION NUMBER 014379

NOTICE OF DRAFTSPERSON'S PATENT DRAWING REVIEW

THE PTO DRAFTSMEN REVIEW ALL ORIGINALLY FILED DRAWINGS REGARDLESS OF WHETHER THEY WERE DESIGNATED AS INFORMAL OR FORMAL. ADDITIONALLY, THE PATENT EXAMINER WILL ALSO REVIEW THE DRAWINGS FOR COMPLIANCE WITH THE REGULATIONS.

The drawings filed 4/28/93

A. ☐ are approved by the draftsperson.

B. ☒ are objected to by the draftsperson under 37 CFR 1.84 for the reason(s) checked below. The examiner will require submission of new, corrected drawings at the appropriate time. Corrected drawings must be submitted according to the instructions listed on the back of this Notice.

1. Paper and ink. 37 CFR 1.84(a)

☐ Sheet(s)_____ Poor.

2. Size of Sheet and Margins. 37 CFR 1.84(b)

Acceptable Paper Sizes and Margins

Margin	Paper Size: 8 1/2 by 14 inches	8 1/2 by 13 inches	DIN size A4 21 by 29.7 cm.
Top	2 inches	1 inch	2.5 cm.
Left	1/4 inch	1/4 inch	2.5 cm.
Right	1/4 inch	1/4 inch	1.5 cm.
Bottom	1/4 inch	1/4 inch	1.0 cm.

☒ Proper Size Paper Required. All Sheets Must be Same Size. Sheet(s) 1-2

☐ Proper Margins Required. Sheet(s) _____

☐ TOP ☐ RIGHT

☐ LEFT ☐ BOTTOM

3. Character of Lines. 37 CFR 1.84(c)

☐ Lines Pale or Rough and Blurred. Fig(s)_____

☐ Solid Black Shading Not Allowed. Fig(s)_____

4. ☐ Photographs Not Approved.

_____

☐ Comments;

5. Hatching and Shading. 37 CFR 1.84(d)

☐ Shade Lines are Required. Fig(s) _____

☐ Criss-Cross Hatching Not Allowed. Fig(s) _____

☐ Double Line Hatching Not Allowed. Fig(s) _____

☐ Parts in Section Must be Hatched. Fig(s) X

6. Reference Characters. 37 CFR 1.84(f)

☐ Reference Characters Poor or Incorrectly Sized. Fig(s) _____

☐ Reference Characters Placed Incorrectly. Fig(s) _____

7. Views. 37 CFR 1.84(i) & (j)

☐ Figures Must be Numbered Properly.

☐ Figures Must Not be Connected. Fig(s) _____

8. ☐ Identification of Drawings. 37 CFR 1.84(l) Extraneous Matter or Copy Machine Marks Not Allowed. Fig(s) _____

9. ☐ Changes Not Completed from Prior PTO-948 dated _____

Telephone inquires concerning this review should be directed to the Chief Draftsperson at telephone number (703) 305-8404.

JF — Reviewing Draftsperson

8/28/93 — Date

Note: Any objection to the drawings made by the examiner will be communicated separately in an office action.

Applicant's Copy

ANNEX 6

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Pak-Wing Steve Chum et al.

Serial No.: 08/378,998 Group Art Unit: 1505

Filed: January 27, 1995 Examiner: David Wu

For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

EXTENSION OF TIME

Applicant(s) hereby request(s) that the shortened statutory period for response now set to expire July 18, 1995 in this application be extended for a period of three (3) month(s), the extended period then expiring on October 18, 1995. This is a first request for an extension of time.

Please charge $870 to our Deposit Account No. 04-1512. If this estimate is incorrect, please charge or credit our account accordingly. Two duplicate copies of this sheet are enclosed.

Respectfully submitted,

By _____
Osborne K. McKinney
Registration No. P-40,084
Phone: (409) 238-7889

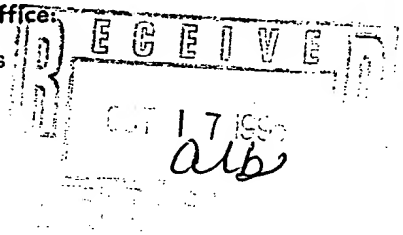
Freeport, Texas 77541

OKM/mfg
C-40,121-AB

ANNEX 7

C- 40,121-AB

Received in the U.S. Patent and Trademark Office:
3 Mo. Ext. of Time plus 2 copies
Added Claims Fee Sheet plus 2 copies
Response After Final Rejection
Declaration of Ronald P. Markovich



Applicant: Pak-Wing Steve Chum
Serial No.: 08/378,998
Filed: January 27, 1995
Title: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

OKM/mfg

10 a/21/95

ANNEX 8

-103X
(. 7-93)

SEP 2 1993
alb

FILING RECEIPT

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTORNEY DOCKET NO.	DRWGS	TOT CL	IND CL
08/054,379	04/28/93	1503	$1,134.00	C40121G	2	30	4

THE DOW CHEMICAL CO.
PATENT DEPARTMENT
BLDG. B-1211
DALLAS, TX 77541

RECEIVED
SEP - 2 1993

Receipt is acknowledged of this patent application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Application Processing Division's Customer Correction Branch within 10 days of receipt. Please provide a copy of the Filing Receipt with the changes noted thereon.

Applicant(s) PAK-WING STEVE CHUM, LAKE JACKSON, TX; GEORGE W. KNIGHT, LAKE JACKSON, TX; RONALD P. MARKOVICH, FRIENDSWOOD, TX; SHIH-YAW LAI, SUGAR LAND, TX.

CONTINUING DATA AS CLAIMED BY APPLICANT-
THIS APPLN IS A CIP OF 07/776,130 10/15/91

FOREIGN FILING LICENSE GRANTED 08/26/93
TITLE
FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

PRELIMINARY CLASS: 528

MAILED TO MIDLAND

08/054379

C- 40,121-G

Continuation-in-Part

Received NEW PATENT APPLICATION in the U.S. Patent Office re: Fee Sheet plus 2 copies

Title: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

Applicant: Pak-Wing Steve Chum et al.
Pages of Spec:
Number of Claims: 30
Sheets of Drawings: 2
Declaration attached. Yes
Fee: $1,004.00 charged to our Deposit Account.

MAIL ROOM
APR 30 1993
PAT. & TRADEMARK OFF.

LWW/mfg

MAILED TO MIDLAND

(see reverse)

ANNEX 9

Best Available Copy

MAILED TO MID

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address : COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/054,379	04/28/93	CHUM	P C401216

EXAMINER

15M2/0727

THE DOW CHEMICAL CO.
PATENT DEPARTMENT
BLDG. B-1211
DALLAS, TX 77541

ART UNIT	PAPER NUMBER
1505	7

DATE MAILED: 07/27/94

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined ☒ Responsive to communication filed on 5-18-94 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 0 days from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

1. ☐ Notice of References Cited by Examiner, PTO-892.
2. ☐ Notice re Patent Drawing, PTO-948.
3. ☐ Notice of Art Cited by Applicant, PTO-1449.
4. ☐ Notice of Informal Patent Application, Form PTO-152.
5. ☐ Information on How to Effect Drawing Changes, PTO-1474.
6. ☐ _____

Part II SUMMARY OF ACTION

1. ☒ Claims 1-8 and 17-23 are pending in the application.
   Of the above, claims _____ are withdrawn from consideration.
2. ☒ Claims 9-16 and 24-30 have been cancelled.
3. ☐ Claims _____ are allowed.
4. ☒ Claims 1-8 and 17-23 remain are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable. ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed on _____, has been ☐ approved. ☐ disapproved (see explanation).
12. ☐ Acknowledgment is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

EXAMINER'S ACTION

15. Applicant's election without traverse of Group I, claims 1-8, and 17-23 in Paper No. 6 is acknowledged.

16. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

17. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

18. Claims 1-8, and 17-23 remain rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103 as obvious over WO '414.

19. Paragraph 27 of Paper No. 4 are incorporated herein by reference.

20. The applicants argue that part (A) of claimed polymer blends is a substantially linear ethylene/alpha-olefin interpolymer which is not a linear polymer but has "long chain branching", and part (B) is a heterogeneously branched ethylene polymer wherein less than 10 wt.% of a polymer fraction having SHC > about 1.3. However, the physical properties of '006 and '013 of WO '414 such as density, MWD, melt index are substantially similar to those set forth in the claims. Moreover, the term "long chain branching" which applicants alleged as novelty of part (A) has never been set forth in the claims; the part (B) is made by a conventional Ziegler-type catalyst which is the same method '013 of WO '414 was made. Applicants also alleged that in Table 3, example 1 and 2 both have significantly higher dart impact and toughness than those of comparative example 3. However, none of the comparative experiments (including comparative example 3) are truly representative of the closest disclosure of WO '414.

The Chum's Declaration filed on May 18, 1994 has been considered but not deemed to be persuasive since there is no any comparative tests to show the unexpected results of the claimed polymer blends, mere conclusory statements are not entitled to

probative weight. Since applicants have not met their burden to provide objective evidence demonstrating the claimed polymer blends are in fact differ from those of WO '414, the 102(b)/103 rejection is still deemed to be proper.

21. Applicant's arguments filed on May 18, 1994 have been fully considered but they are not deemed to be persuasive.

22. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

DW
David Wu
July 26, 1994

JOSEPH L. SCHOFER
SUPERVISORY PATENT EXAMINER
ART UNIT 155

ANNEX 10

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Pak-Wing Steve Chum, et al.

Serial No.: 08/054,379 Group Art Unit: 1505

Filed: April 28, 1993 Examiner: D. Wu

For: FABRICATED ARTICLES MADE FROM ETHYLENE POLYMER BLENDS

"Express Mail" mailing label number TB 184 380 515
Date of Deposit January 27, 1995
I hereby certify that this paper or fee is being deposited with the United States Postal Service, with sufficient postage "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231
Jan Alverson
(Typed or printed name of person mailing paper or fee)
Jan Alverson
(Signature of person mailing paper or fee)

Hon. Commissioner of Patents & Trademarks
Washington, D.C. 20231

Sir:

EXTENSION OF TIME

Applicant(s) hereby request(s) that the shortened statutory period for response now set to expire October 27, 1994 in this application be extended for a period of three (3) month(s), the extended period then expiring on January 27, 1995. This is a second request for an extension of time.

Please charge $870.00 to our Deposit Account No. 04-1512. If this estimate is incorrect, please charge or credit our account accordingly. Two duplicate copies of this sheet are enclosed.

Respectfully submitted,

By L Wayne White

L. Wayne White
Registration No. 25,415
Address: Bldg. B-1211
Freeport, Texas 77541
Phone: 409-238-2149

LWW/jka
C-40,121-G